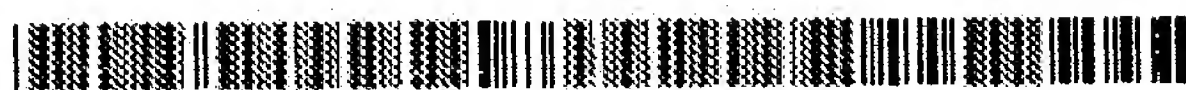


(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
10 November 2005 (10.11.2005)

PCT

(10) International Publication Number
WO 2005/105138 A2

(51) International Patent Classification⁷: **A61K 38/39**

(21) International Application Number:
PCT/US2005/012409

(22) International Filing Date: 14 April 2005 (14.04.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/561,919 14 April 2004 (14.04.2004) US

(71) Applicant (for all designated States except US): **VIRGINIA TECH INTELLECTUAL PROPERTIES, INC.** [US/US]; 1872 Pratt Drive, Suite 1625, Blacksburg, VA 24060 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **ETZKORN, Felicia, A.** [US/US]; 406 Algonquin Court, Blacksburg, VA 24060 (US). **WANG, Xiaodong** [CN/US]; 3175 N. Price Road, Apt. 2214, Chandler, AZ 85224 (US). **SHOULDERS, Matthew** [US/US]; 2901 Curry Parkway, Apt. 14, Madison, WI 53713 (US). **DAI, Nan** [CN/US]; 600 Washington Street, #10, Blacksburg, VA 24060 (US).

(74) Agents: **WHITHAM, Michael, E.** et al.; Whitham, Curtis & Christofferson, PC, 11491 Sunset Hills Road, Suite 340, Reston, VA 20190 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: COLLAGEN MIMICS

(57) Abstract: Novel peptidomimetics are provided, which mimic collagen. Molecular structures of interest include for imparting the collagen-mimicking property are each of: Gly- $\Psi[(E)CH=C]$ -Xaa-Yaa; Gly-Xaa- $\Psi[(E)CH=C]$ -Yaa; Gly-Xaa-Yaa- $\Psi[(E)CH=CH]$; Gly- $\Psi[(E)CH=C]$ -Xaa- $\Psi[(E)CH=C]$ -Yaa; Gly-Xaa- $\Psi[(E)CH=C]$ -Yaa- $\Psi[(E)CH=CH]$; Gly- $\Psi[(E)CH=C]$ -Xaa-Yaa- $\Psi[(E)CH=CH]$ and Gly- $\Psi[(E)CH=C]$ -Xaa- $\Psi[(E)CH=C]$ -Yaa- $\Psi[(E)CH=CH]$. Xaa and Yaa each means a natural amino acid, Hyp or Flp. Amide bonds may be altered to create collagen mimics. Preferably a tripeptide polymer comprising at least about 60 (Gly-Pro-Hyp) repeating units and having molecular weight of at least about 40,000 is synthesized as a long, collagen-like material. The new synthetic collagen-like materials may have better resistance to degradation, better mechanical strength and/or better ability to fold than natural collagen.



WO 2005/105138 A2